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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/765,475	01/18/2001	William H. Zebuhr	105019-0012	9889
25181	7590	04/01/2004	EXAMINER	
FOLEY HOAG, LLP PATENT GROUP, WORLD TRADE CENTER WEST 155 SEAPORT BLVD BOSTON, MA 02110			LEUNG, JENNIFER A	
			ART UNIT	PAPER NUMBER
			1764	

DATE MAILED: 04/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

## Office Action Summary

Application No.

09/765,475

Applicant(s)

ZEBUHR, WILLIAM H.

Examiner

Jennifer A. Leung

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/18/01 ; 8/9/02 ; 12/15/03</u>   | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The changes made to the specification and drawings in the Preliminary Amendment submitted on August 26, 2002 are acceptable.

### ***Drawings***

2. FIG. 20 is objected to because reference character "288" should be changed to -- 266 -- for proper indication of the "folded sheet's flanges" set forth on page 18, lines 21-23. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities:
  - On page 17, line 26, "concentrate outlet 16" should be changed to -- condensate outlet 14 -- for consistency with the drawings.
  - On page 18, line 5, "modules 102, 104, 106, 108" should be changed to -- modules 102, 104, 106, 108 and 100 -- for consistency with the drawings.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the phrase, "can be" (lines 2, 4) is considered vague and indefinite, since whether an element "can" function in a given manner does not constitute a positive structural limitation. See also claim 18 (lines 3, 5) and claim 24 (lines 2, 4).

Regarding claim 3, "the liquid collector" (line 4) lacks proper positive antecedent basis. Furthermore, it is unclear as to its structural relationship to the other elements of the apparatus.

Regarding claims 10 and 12, "the piston" (line 2) lacks proper positive antecedent basis.

Regarding claim 13, the phrase, "can conduct" (line 2) is considered vague and indefinite, whether an element "can" function in a given manner does not constitute a positive structural limitation. See also claim 20 (line 2) and claim 26 (line 2).

Regarding claims 7, 9, 17, 25 and 29, the language of the claims is drawn to a method limitation that renders the claims vague and indefinite, as it is unclear as to the structural limitation applicant is attempting to recite by, "the average duration of the recirculation cycles is at least fifty times that of the flush cycles," since the recirculation and flush cycles are not considered elements of the apparatus.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-29 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,689,251 in view of Hartman et al. (US 5,587,055).

US '251 substantially claims the evaporator unit and method of evaporating a liquid as instantly recited in claims 1-29. However, US '251 is silent as to claiming a filter interposed in the make-up path, such that during a flush state, liquid (i.e., the concentrate) is diverted from the recirculation path into the filter. Hartman et al. (FIG. 1) teaches a water distillation apparatus and method, wherein a filtering means **246, 252** is provided to allow liquid that has passed through the evaporator **24** without evaporating to be safely discharged to a standard water drainage pipe (not shown). It would have been obvious for one of ordinary skill in the art at the time the invention was made to supply a filter to the evaporator unit and method of US '252, because the filter would enable the concentrate to be safely discharged from the evaporator unit by removing the contaminants contained in the concentrate, thereby being in compliance with local regulations that prohibit the drainage of contaminants into the normal tap water drainage system, as taught by Harman et al. (column 2, lines 11-17; column 9, lines 1-14).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 11, 13, 14, 16, 24, 26 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Hartman et al. (US 5,587,055).

Regarding claims 1 and 24, Hartman (FIG. 1; generally, column 4, line 17 to column 5, line 67; column 8, line 60 to column 9, line 15) discloses an evaporator unit comprising:

- a feed inlet (i.e., the inherent inlet to line **12**);
- a heat exchanger including heat transfer surfaces that form at least one evaporation chamber (i.e., heating pan **26** defining an evaporator unit **24**, having a heating element **32**);
- a make-up liquid guide that defines a make-up path (i.e., line **12** and inner conduit **22**) to direct liquid from the inlet at line **12** to the evaporation chamber **24**;
- a filter interposed in the make-up path (i.e., a water filter, not shown; column 4, lines 21-24);
- a recirculation guide that defines a recirculation path (i.e., via pump **95**, valve **246**; column 9, lines 9-15) that returns to the evaporation chamber **24** liquid that has passed through the chamber without evaporating; and
- a transfer valve (i.e., valve **246**) interposed in the recirculation path and operable between:
  - a recirculation state (i.e., valve **246** being open), which permits liquid that has passed through the evaporation chamber **24** without evaporating to return along the recirculation path to the chamber **24**; and
  - a flush state (i.e., valve **246** being closed), which diverts liquid from the recirculation path into the filter (not shown) in line **12**.

Regarding claim 2, Hartman (FIG. 1; column 4, lines 17-51) discloses a refresh-liquid reservoir (i.e., preheating bowl **21**), a feed-liquid-storage guide that defines a feed-liquid-storage path (i.e., line **12**) that directs liquid from the feed inlet to the refresh-liquid reservoir **21**, and a refresh guide that defines a refresh path (i.e., inner conduit **22**) along which it directs liquid from the refresh-liquid reservoir **21** to evaporation chamber **24**.

Regarding claims 3 and 4, the same comments apply. Furthermore, Hartman (FIG. 1; column 8, line 60 to column 9, line 14) discloses a concentrate reservoir (i.e., preheating bowl **21**) and a concentrate-storage guide defining a concentrate-storage path (i.e., via valve **250** and line **12**) that directs liquid from the liquid collector (i.e., collected water **34**) through the filter in line **12** (not shown) and into the concentrate reservoir **21**.

Regarding claim 11, Hartman discloses a concentrate outlet and a concentrate discharge guide defining a concentrate-discharge path to direct liquid from concentrate reservoir **21** to the concentrate outlet (i.e., by opening valve **244** in the discharge pipe; column 9, lines 1-7; FIG. 1).

Regarding claims 13 and 26, Hartman discloses at least one condensation chamber (i.e., steam bowl condenser **40**; column 4, lines 52-58; FIG. 1).

Regarding claims 14 and 27, Hartman (column 4, lines 52-58; FIG. 1) discloses a vapor guide (i.e., outer tube **38**) that directs vapor (i.e., steam **36**) along a vapor path from the evaporation chamber **24** to the condensation chamber **40**.

Regarding claim 16, Hartman discloses a valve operator for operating the transfer valve **246** alternately to define flush cycles and recirculation cycles (i.e., according to Autoclean logic **232**; FIG. 1, 3; column 8, line 31 to column 9, line 15)

Instant claims 1-4, 11, 13, 14, 16, 24, 26 and 27 structurally read on the apparatus of Hartman.

7. Claims 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Aronson et al. (US 3,405,037).

Regarding claim 18, Aronson et al. (FIG. 2; generally, column 4, line 6 to column 5, line 19) discloses a method for evaporating a liquid, the method comprising:

providing an evaporator unit comprising:

a feed inlet (i.e., the inlet of line **20**);

a heat exchanger including heat transfer surfaces that form at least one evaporation chamber (i.e., defined by flash heaters **112**);

a make-up liquid guide that defines a make-up path to direct liquid from the inlet **20** to the evaporation chambers of heaters **112** (i.e., via lines **22/26/38/109**); and

a filter (i.e., filtering means **28a, 28b**) interposed in the make-up path **22/26/38/109** to filter liquid that flows therethrough;

introducing an inlet flow of liquid into the feed inlet **20** (i.e., effluent from a building drain, not shown);

during recirculation cycles, returning to the evaporation chambers of heaters **112** liquid that has passed therethrough without evaporating (i.e., by operation of pump **110** along a recirculation path defined by lines **115/118/109**); and

during flush cycles, flushing the filter **28a, 28b** by directing thereinto liquid that has passed through the evaporation chambers of heaters **112** without evaporating (i.e., by operation of pump **122**, causing a flow of concentrate through recycle line **120** and subsequently filters **28a, 28b**).

Inherently, the recirculation cycles are “relatively long” and the flush cycles are “relatively short”, as evidenced by the disclosure which states,

“The product leaving the coolest stage of the heater **100** will pass in line **118** to combine with the degassed feed of line **109** to be pumped back into the heater **112** for further heating and flashing, except for a *small amount in line 120 blown down and pumped out* by means of pump **122**,” (column 4, lines 58-63),



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and with regards to the embodiment of FIG. 1,

“A blowdown line **66** may be connected between boiler **44** and settling tank **18** wherein a *small portion of the fluid in the boiler is discarded through the blowdown line 66* as is common in boiler practice,” (column 3, lines 41-44).

The “small amount” or “small portion” of fluid blown down inherently indicates a shorter flush cycle, relative to the recirculation cycle.

Regarding claim 20, Aronson et al. discloses at least one condensation chamber (i.e., condensate collecting portion **126** of heater **112**; FIG. 2; column 4, lines 35-70).

Instant claims 18 and 20 read on the method of Aronson et al.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 17-21, 23, 25 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartman et al. (US 5,587,055).

Hartman additionally discloses a method of operating the evaporator unit as disclosed in claims 1, 13, 14, 24, 26 and 27 above, wherein during recirculation cycles, liquid **34** that has passed through the evaporation chamber **24** without evaporating is returned to the evaporation chamber **24**, upon opening valve **246**; and during flush cycles, liquid **34** that has passed through the evaporation chamber **24** without evaporating is directed to the filter (not shown) in line **12**, upon closing valve **236** and diverting liquid through valve **250**. Furthermore, Hartman

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(emphasis added; column 8, lines 31-68) discloses,

“Autoclean logic **232** receives status input signals... Depending on these status input signals, autoclean logic **232** sends a signal to autoclean timing logic **234** which activates, *for a specific time period*, the autoclean pump **95** through autoclean drive **236**,” and

“... *at times selected as described in connection with the status signals* received from full water probe **70**, heater probe **204**, or the several fault probes **20**, **206**, **238**, and **240**, autoclean pump is activated to remove water from heating pan **26**.”

Although Hartman is silent as to the average duration of the “specific time period”, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select an appropriate average duration for each of the recirculation and flush cycles in the method and apparatus of Hartman, because the relative durations of each cycle would have been considered a result effective variable for one of ordinary skill in the art (i.e., as dependent on the status input signals generated for a given feed composition, concentrate contaminant level, etc.), and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233.

9. Claims 1-4, 11, 13-17, 19 and 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aronson et al. (US 3,405,037).

Regarding claims 1, 16 and 24, Aronson et al. (FIG. 2; generally, column 4, line 6 to column 5, line 19) discloses an evaporator unit comprising:

- a feed inlet (i.e., the inlet of line **20**);
- a heat exchanger including heat transfer surfaces that form at least one evaporation chamber (i.e., defined by flash heaters **112**);
- a make-up liquid guide that defines a make-up path to direct liquid from the inlet **20** to the evaporation chambers of heaters **112** (i.e., via lines **22/26/38/109**);

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a filter interposed in the make-up path **22/26/38/109** (i.e., filtering means **28a, 28b**);

a recirculation guide that defines a recirculation path that returns to the evaporation chamber **112**

liquid that has passed through the evaporation chamber **112** without evaporating (i.e., via lines **115/118/109**); and

a pumping system (i.e., comprising pumps **110, 122**) interposed in the recirculation path **115/118/109** and operable between:

a recirculation state, which returns liquid that has passed through the evaporation chambers without evaporating along the recirculation path **115/118/109** to the evaporation chambers (i.e., by operation of pump **110**) and

a flush state, which pumps liquid from the recirculation path **115/118/109** into the filter **28a, 28b** (i.e., by operation of pump **122**, causing flow through recycle line **120** and subsequently filters **28a, 28b**).

Aronson et al. (with emphasis added; column 4, lines 57-63; FIG. 2) further discloses that,

*“The product leaving the coolest stage of the heater **100** will pass in line **118** to combine with the degassed feed of line **109** to be pumped back into the heater **112** for further heating and flashing, except for a small amount in line **120** blown down and pumped out by means of pump **122**.”*

However, Aronson et al. are silent as to the apparatus further comprising a transfer valve interposed in the recirculation path **115/118/109**, for regulating the flow direction of the concentrate being “pumped back into the heater **112**” (i.e., as a recirculation state) versus the “small amount in line **120** blown down and pumped out,” (i.e., as a flush state).

In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to supply a transfer valve to the recirculation path **115/118/109** in the

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apparatus of Aronson et al. (i.e., for regulating the flow of concentrate being recirculated to the evaporator **112** versus the flow of concentrate being sent to filters **28a**, **28b**) because the provision of valve means in branched flow lines for setting flow direction is conventional knowledge to one having ordinary skill in the art. This is further evidenced by Aronson et al., who teaches three-way valves **30**, **32**, **34** and **36** being interposed in the interconnecting locations of conduits **26**, **26b**, **72a**, **72b**, **70a** and **70b**, for setting the direction of fluid flow through filtering means **28a**, **28b** (FIG. 1, 2; column 2, lines 50-70).

Regarding claim 2, Aronson et al. (FIG. 2) discloses a refresh-liquid reservoir (i.e., settling tank **18**); a feed-liquid-storage guide that defines a feed-liquid-storage path that directs liquid from the feed inlet to the refresh-liquid reservoir **18** (i.e., the path as defined by line **20**); and a refresh guide that defines a refresh path along which it directs liquid from the refresh-liquid reservoir **18** to the evaporation chamber **112** (i.e., as defined by lines **22/26/38/109**).

Regarding claims 3 and 4, the same comments apply. Furthermore, Aronson et al. (FIG. 2) disclose a concentrate reservoir (i.e., settling tank **18**) and a concentrate-storage guide defining a concentrate-storage path (i.e., lines **115/18/120**) that directs liquid from the liquid collector into the concentrate reservoir **18**.

Regarding claim 11, Aronson et al. disclose a concentrate outlet (i.e., the outlet of discharge line **74**; FIG. 2); and a concentrate discharge guide (i.e., the discharge line **74**) defining a concentrate-discharge path along which it directs liquid from the reservoir **18** to the outlet.

Regarding claims 13 and 26, Aronson et al. discloses at least one condensation chamber (i.e., condensate collecting portion **126** of heater **112**; FIG. 2; column 4, lines 35-70).

Regarding claims 14, 15, 21, 22, 27 and 28, as illustrated in the embodiment of FIG. 2,

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Aronson et al. discloses flash heaters **112** having a vapor path leading from the evaporation chambers (i.e., the lower chambers of heaters **112**) to the condensation chambers (i.e., the upper chambers **126** of heaters **112**), as defined by the upward flow of the “flashed” vapors. The FIG. 2 embodiment, however, lacks a vapor guide and compressor combination that is operable to make the vapor pressure in the condensation chamber greater than the evaporation chamber. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute a different heater configuration (i.e., one having a vapor guide and compressor) for the flash heaters **112** in Figure 2 of Aronson et al., because the substitution of known equivalent structures and the substitution of one known equivalent technique for another involves only ordinary skill in the art, *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), *Ex parte Novak* 16 USPQ 2d 2041 (BPAI 1989); *In re Mostovych* 144 USPQ 38 (CCPA 1964); *In re Leshin* 125 USPQ 416 (CCPA 1960); *Graver Tank and Manufacturing Co. v. Linde Air Products Co.* 85 USPQ 328 (USSC 1950). Aronson et al. illustrates the conventionality of using such a heater configuration for evaporating liquid in the embodiment of FIG. 1. In particular, Aronson et al. (column 2, line 35 to column 4, line 5) teaches a heater/boiler **44** comprising an evaporation chamber (i.e., the shell side of boiler **44**, in contact with the outer surface of heating tube bundle **58**) and a condensation chamber (i.e., the tube side of boiler **44**, in contact with the inner surface of heating tube bundle **58**), wherein the heater/boiler **44** comprises a vapor guide (i.e., as defined by steam header **50**, line **54** and manifold **56**) that directs vapor along a vapor path from the evaporation chamber to the condensation chamber. The heater/boiler **44** further comprises a compressor **52** disposed in the

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vapor path such that the vapor pressure in the condensation chamber (i.e., about 15 psig) is greater than the evaporation chamber (i.e., about 12 psig).

Regarding claims 17, 19, 23, 25 and 29, the average duration of recirculation is not considered an element of the apparatus, and therefore the apparatus of Aronson et al. meets the claims. Regarding the corresponding method, Aronson et al. (emphasis added; column 4, lines 57-63; FIG. 2) discloses,

*“The product leaving the coolest stage of the heater 100 will pass in line 118 to combine with the degassed feed of line 109 to be pumped back into the heater 112 for further heating and flashing, except for a small amount in line 120 blown down and pumped out by means of pump 122.”*

The recirculation state or cycle (i.e., when the liquid is “pumped back into the heater”) will inherently have an average duration that is longer than the flush state (i.e., when the contents in line 120 are “blown down and pumped out”), as evidenced by the flushing or removal of only a “small amount” of concentrate in line 120, relative to the amount flowing through the recirculation path. Although Aronson is silent as to the specifically recited duration ratio, it would have been obvious for one of ordinary skill in the art at the time the invention was made select a suitable average duration for the recirculation state or cycle relative to the average duration of the flush state or cycle (i.e., such as the recited ratio of at least 50:1) in the method of Aronson et al., since the relative durations would have been considered result effective variables to one having ordinary skill in the art, and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233.


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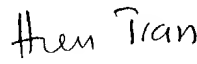
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung  
March 17, 2004 

  
**HIEN TRAN**  
**PRIMARY EXAMINER**